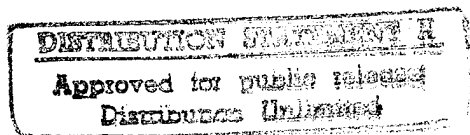
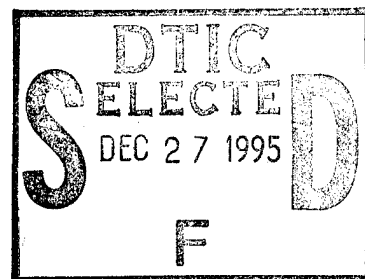
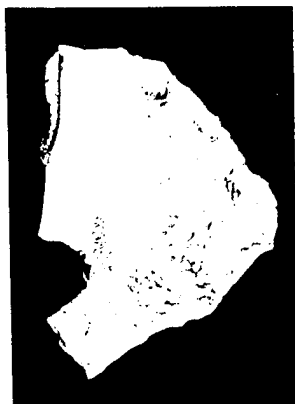




US Army Corps  
of Engineers  
Omaha District

## Results of Test Excavations at 32ME588, Mercer County, North Dakota

\*Original contains color  
plates: All DTIC reproduct-  
ions will be in black and  
white\*



Prepared by:  
Larson-Tibesar Associates, Inc.  
Laramie, Wyoming

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle)  RESULTS OF TEST EXCAVATIONS AT 32ME588, MERCER COUNTY, NORTH DAKOTA		5. TYPE OF REPORT & PERIOD COVERED Final July 25, 1995
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Larson-Tibesar Assoc., Inc., Thomas K. Larson, Ross G. Hilman, Cynthia J. Oliver, Peter J. Lund, and John Sharpe		8. CONTRACT OR GRANT NUMBER(s)  DACW-45-95-P-0712
9. PERFORMING ORGANIZATION NAME AND ADDRESS Larson-Tibesar Associates, Inc. 421 South Cedar Street Laramie, Wyoming 82070		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS U.S. Department of the Army Omaha District Corps of Engineers 215 North 17th Street Omaha, Nebraska 68102-4978		12. REPORT DATE July 25, 1995
		13. NUMBER OF PAGES 16
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  Unlimited		
<div style="border: 1px solid black; padding: 5px; text-align: center;">             DISTRIBUTION STATEMENT A              Approved for public release              Distribution Unlimited           </div>		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
<div style="text-align: right; font-size: 2em; font-weight: bold;">19951219 031</div>		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
bison bone	Holocene sediment	National Register of
Fort Union formation	Knife River flint	Historic Places
Garrison Study Area	flake tools	State Historical
Hille State Game	Lake Sakakawea	Society of North
Management Area	Mercer County	Dakota
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
<p>A systematic inventory and test of the area defined as 32ME588 was conducted from April 30 to May 1, 1995. The purpose was to assess the eligibility of 32ME588 for nomination to the National Register of Historic Places. The site is located on the south bank of Lake Sakakawea in Mercer County, North Dakota, on the Corps' shoreline and take area as part of the Hille State Game Management Area. The area is only occasionally used by fishing parties and for wildlife and cattle grazing.</p>		

20. Cont'd.

The entire area of 32ME588 was examined both on foot and by performing 34 shovel tests. All of the tests produced no cultural deposits remaining within the eastern 225 meters of the site as it was originally defined.

Evidence of a buried cultural level does exist for the area of Test Units 1, 2, and 4. It seems likely that the cultural component could contain a stone tool assemblage. This information may possibly contribute to a clear understanding of the age and function of this cultural component. Therefore, this part of 32ME588 is believed to be eligible for nomination to the National Register of Historic Places.

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RESULTS OF TEST EXCAVATIONS AT 32ME588,  
MERCER COUNTY, NORTH DAKOTA;  
LTA PROJECT 950405c

Thomas K. Larson, Ross G. Hilman, Cynthia J. Oliver,  
Peter J. Lund and John Sharpe

July 25, 1995

*INTRODUCTION*

From April 30, 1995 to May 1, 1995, personnel from LTA, Inc., conducted a systematic inventory and testing of the area defined as 32ME588. The purpose of these investigations was to gather sufficient information to assess the eligibility of 32ME588 for nomination to the National Register of Historic Places.

This work was conducted under Purchase Order No. DACW45-95-P-0712, issued by the Corps of Engineers, Omaha District. Personnel for the project were Ross G. Hilman, Thomas K. Larson (principal investigator), Peter Lund, Cynthia J. Oliver, and John Sharpe. All of the artifacts collected under this contract will be stored at the State Historical Society of North Dakota, Bismarck.

The work performed was intended to provide compliance with all or pertinent segments of the following Federal legislation and implementing regulations: Public Law 86-523, Reservoir Salvage Act of 1960 as amended by P.L. 93-291, Public Law 89-665, National Historic Preservation Act of 1966 as amended by P.L. 96-515, Public Law 91-190, National Environmental Policy Act of 1969 as amended by P.L. 94-52, Public Law 95-341, American Indian Religious Freedom Act, and Executive Order 11593, implementing regulations 36 CFR Parts 60, 63, 66, and 800.

The Corps of Engineers (1995:1) summarized the work to be accomplished as follows:

Undertake systematic investigation of the active cutbank and adjacent areas above it. Refine and map the boundaries of the site, and collect any diagnostic artifacts from the surface. Areas will be evaluated for evidence of intact deposits through a series of shovel tests at ten-meter intervals, excavation of four one-meter square units in areas of dense artifact concentration, and bank profiling where appropriate. Determine eligibility for the National Register of Historic Places. . . .

Areas of beach terrace will be evaluated to document any intact deposits in greatest jeopardy of destruction. . . .

The contractor shall prepare a report which details the work done, the study rationale, the results of the fieldwork, discussion of the vandalism and erosional impacts, recommendations for additional work, and management recommendations.

The remainder of this report provides a discussion of the location and the environment, previous work at 32ME588, methods, the results of the systematic inventory and testing program, and recommendations.

*LOCATION AND ENVIRONMENT*

The site is on the south (right) bank of Lake Sakakawea, Mercer County, North Dakota. The area is on Corps of Engineers' shoreline and take area administered as part of the

Hille State Game Management Area (Figure 1). This part of North Dakota is within the Garrison Study Area as it is defined within *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component* (North Dakota State Historic Preservation Office 1990). Except for occasional fishing parties and wildlife and cattle grazing, the site area is little used.

There is a small cabin area on private property just to the southwest of the site area. An abandoned water line extends from this cabin area onto the beach. While this line is within the site boundaries drawn on the original site form, it is just to the west of any cultural material recorded in 1994.

One part of 32ME588 is on the modern beach area of Lake Sakakawea. Additional materials are on the remnants of what was once a gentle, north facing hill slope. The beach and the hill slope are now separated by a steep cutbank formed by reservoir action.

No vegetation is present on the beach. The hill slope is vegetated with sparse grasses, forbs, and several brush thickets.

#### PREVIOUS WORK

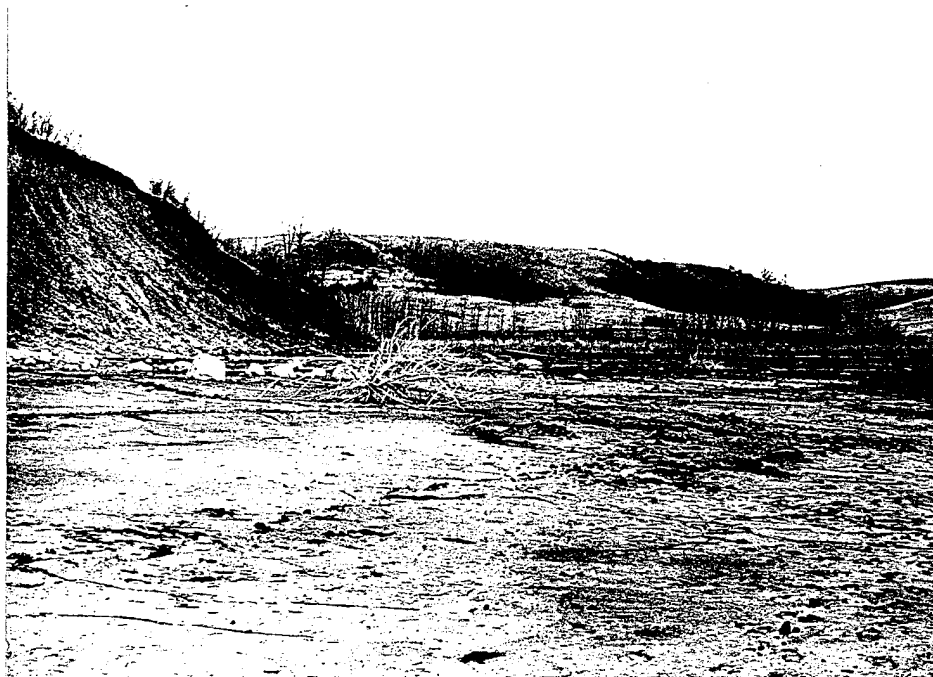
Site 32ME588 was initially recorded in 1982 (Kinney and Schriener 1983). At that time, the site was described on the North Dakota Cultural Resources Survey (NDCRS) Site Form as a "sparse cultural material scatter with medium dense concentrations." Faunal remains, lithics, and two probable Archaic projectile points were collected. Some erosion due to lake action was also noted.

#### METHODS

The entire area within and around the original boundaries of 32ME588 were examined on foot with field personnel spaced no further than 10 m apart. A separate walk at the base of the cutbank was also undertaken to identify any exposed cultural deposits. Except for a feature excavated in Test Unit 4 (see Results, below), however, no cultural material was observed in place in the cutbank. The surface inspection revealed a moderate concentration of artifacts on the beach in the eastern part of the site and a single end scraper on the stable surface south of the cutbank.

Thirty-four shovel tests were excavated in an attempt to define the site boundaries and establish areas of possible intact subsurface deposits. Except for one area of extremely dense brush that was not tested, all shovel tests were excavated at 10 meter intervals along one of two transects. The shovel tests were 30 to 35 cm in diameter and 30 to 40 cm in depth. All matrix from the shovel tests was screened through one-quarter inch hardware cloth. A line of 29 shovel tests, approximately 5 to 10 meters back from the cutbank, was excavated through the approximate east to west axis of the site. Another five shovel tests were excavated on an approximate north to south line centered over the end scraper found on the surface south of the cutbank. All shovel tests produced negative results; most encountered a weathered sandy bedrock/regolith within 30 cm of the present ground surface. Shovel testing was not undertaken on the beach exposure since cultural materials are clearly resting on exposed sandstone and shale bedrock.

Upon completion of the surface inventory, a site map showing the locations of surface artifacts and topographical features was completed using an electronic total station (Figure 2). The locations of the shovel tests and test units were added to the map as they



a



b

Figure 1. Photos of the 32ME588 site area; view to the southwest showing area with artifacts on the beach (a) and view to the northeast showing slopes above cutbanks.

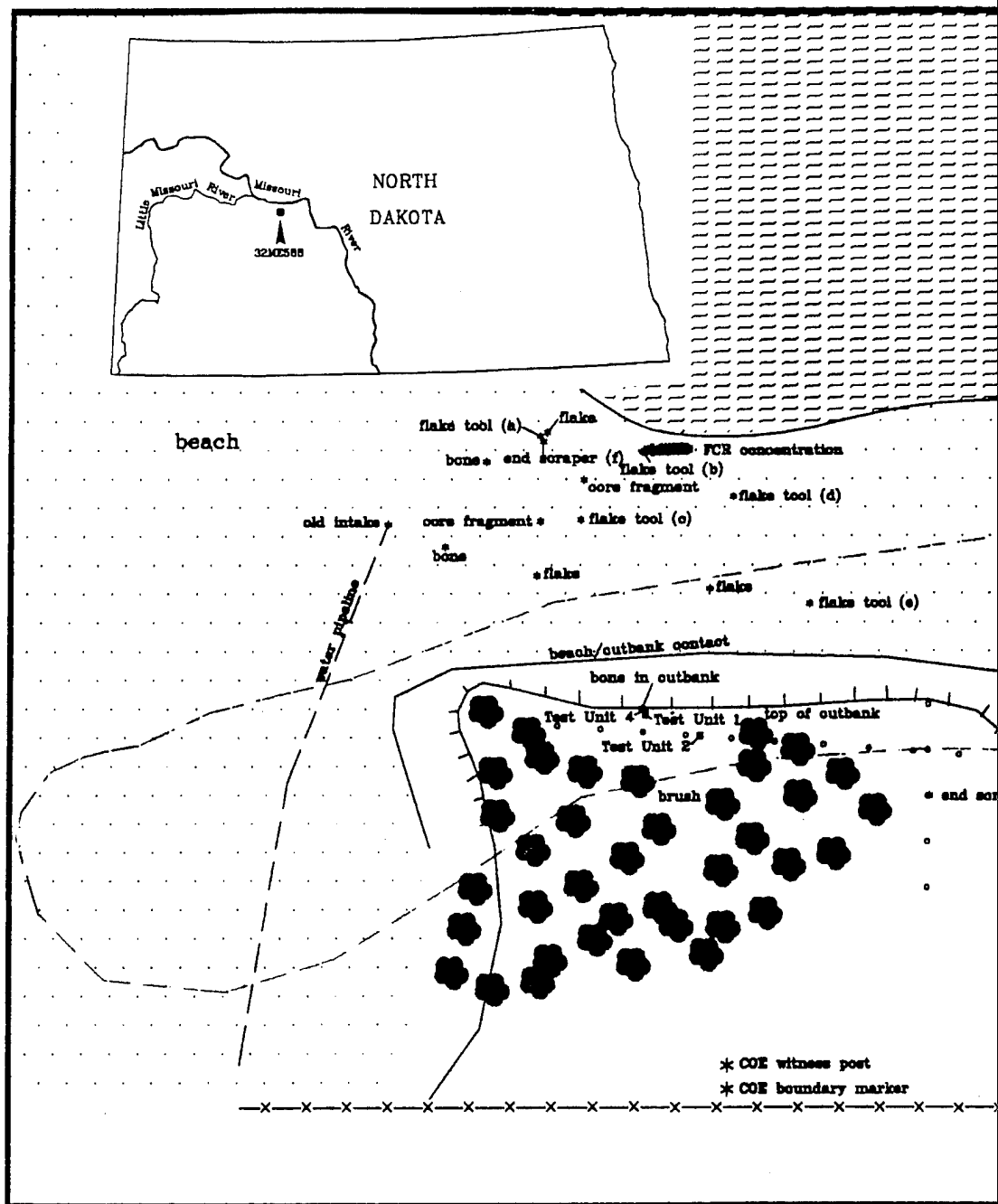
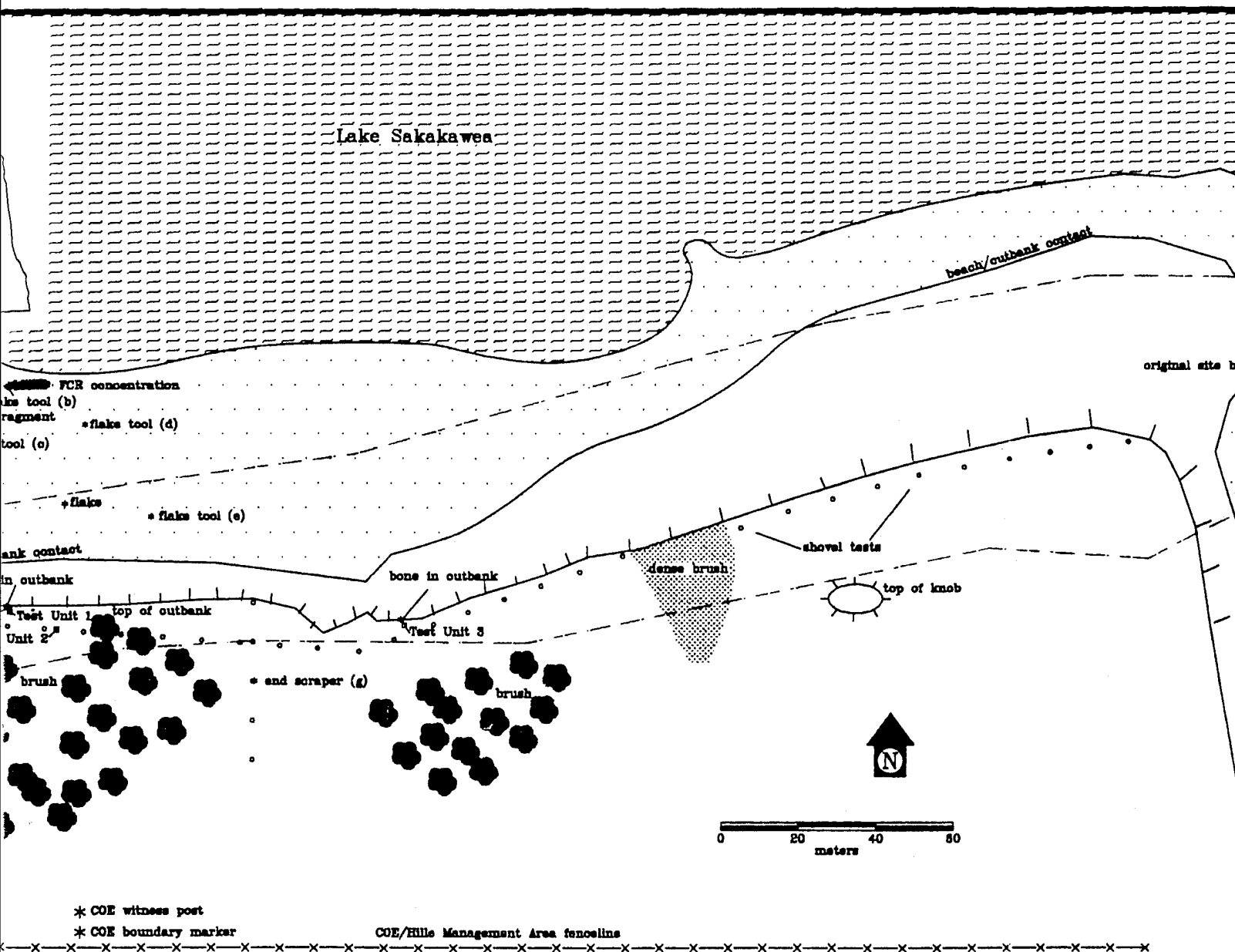
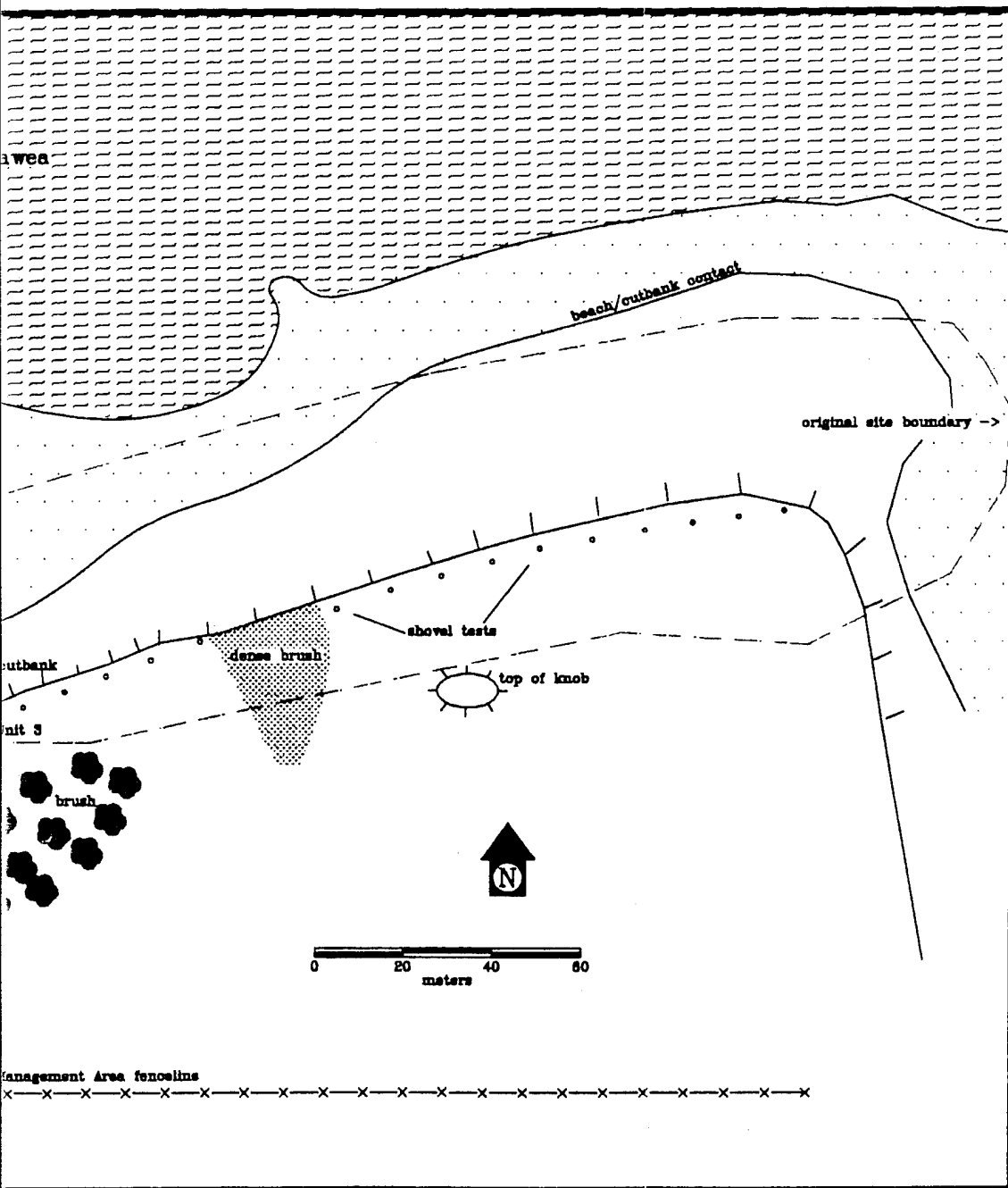


Figure 2. Site map of 32ME588.









3

were completed and the original site boundaries have been superimposed based on the map supplied in the original NDCRS Site Form from 1982.

Four 1-by-1 meter test units were excavated. Test Units 1 and 2 were laid out in a small saddle observed to contain an exposure of bison bone in the cutbank. Test Unit 3 was positioned near another small concentration of displaced bone in the cutbank. Test Unit 4 was used to expand Test Unit 1 and fully expose the cultural feature containing the originally noted bison bone.

Except for the small pockets of Holocene sediment investigated by the excavation of Test Units 1 through 4, there appears to be little, if any, potential for subsurface cultural material at 32ME588. Shovel testing in the eastern half of the site indicates very shallow soil development (perhaps five centimeters or less). To the west of Test Unit 4, the site area slopes quite steeply into a small ephemeral drainage valley. As noted above, there is no Holocene deposition remaining on the beach area. It is therefore believed that the four test units were adequate for investigating the subsurface potential of the site.

All of the test units were excavated in arbitrary 10 cm levels using standard hand excavation tools. At least one part of each test unit was excavated to at least 10 cm below the last encountered cultural materials and into sterile sands, clays, and gravels. An LTA Excavation Record Form was completed for each 1-by-1 meter unit. A profile of at least one wall of each test unit was drawn. The feature encountered was profiled and drawn in plan view. Photographs were taken of all profiles, completed units, and the excavated feature.

With the exception of a waterscreen sample, all matrix was screened through one-quarter inch hardware cloth. A one liter waterscreen sample was collected from each level of each 1-by-1 meter unit and processed through one-sixteenth inch mesh.

An accession number for the assemblage from 32ME588 has been requested from the State Historical Society of North Dakota by the Corps of Engineers, Omaha District (letter from Richard P. Miner, Chief, Economics and Social Analysis Branch, Planning Division to Leonard Thorson, State Historical Society of North Dakota, dated May 9, 1995). When this accession number is received, the assemblage will be appropriately labeled and submitted to the State Historical Society for curation.

## *RESULTS*

A concentration of prehistoric artifacts was found within a 40-by-85 m area on the beach within the western portions of 32ME588. Although the original 1982 site boundaries (see Figure 2) seem to indicate that cultural materials were observed along the entire stretch of beach, none were observed in the eastern beach area in 1995. In fact, this part of the beach narrows quite significantly and much of the area is presently covered by materials slumping off the cutbank.

All cultural materials observed on the beach were flagged and mapped. The artifacts consist of chipped stone tools, fire-cracked rock, a few very small bone fragments, one Knife River flint core fragment, and flakes. All of the debitage is Knife River flint. Although a linear concentration of fire-cracked rock was noted on the beach, this does not appear to be in place. Rather, it appears to be a strand line of rock created by wave action from Lake Sakakawea.

Artifacts collected from the beach (Table 1) consist of a Knife River flint flake tool (Figure 3a) (length [l] = 40 mm, thickness [t] = 6 mm, width [w] = 35 mm) with a rounded "spokeshave" notch on one lateral edge and steep unifacial flaking along the other, a large (l = 76 mm, t = 14 mm, w = 61 mm) ovate basalt flake tool (Figure 3b) with probable use wear along its margins, a Knife River flint flake tool (Figure 3c) (l = 55 mm, t = 8 mm, w = 34 mm) with unifacial retouch along both lateral margins and the distal end, a large Knife River flint flake tool (Figure 3d) (l = 75 mm, t = 11 mm, w = 41 mm) with unifacial retouching along both lateral margins with bifacial retouch for a short distance along one margin, a thin Knife River flint flake tool (Figure 3e) (l = 39 mm, t = 3 mm, w = 20 mm) with unifacial retouch along both lateral margins, and a Knife River flint end scraper (Figure 3f) (l = 33 mm, w (at the distal end) = 26 mm, t = 9 mm).

Table 1. Artifacts collected from the surface of 32ME588.

Description	Letters Used in Figures 2 and 3
flake tool, Knife River flint	a
flake tool, basalt	b
flake tool, Knife River flint	c
flake tool, Knife River flint	d
flake tool, Knife River flint	e
end scraper, Knife River flint	f
end scraper, Knife River flint	g

An end scraper of Knife River flint (Figure 3g) (l = 38 mm, w = 21 mm, t = 8 mm) was also collected from the stable surface south of the cutbank. As noted above in Methods, subsequent shovel testing in this part of the site did not reveal any subsurface cultural materials that might be associated with this end scraper.

Three 1-by-1 m test units (1, 2, and 4) were excavated within intact sediments near the western end of the site. All three of these units were within a small saddle area that provides a slightly more level ground surface than the surrounding hill slope (Figure 4a).

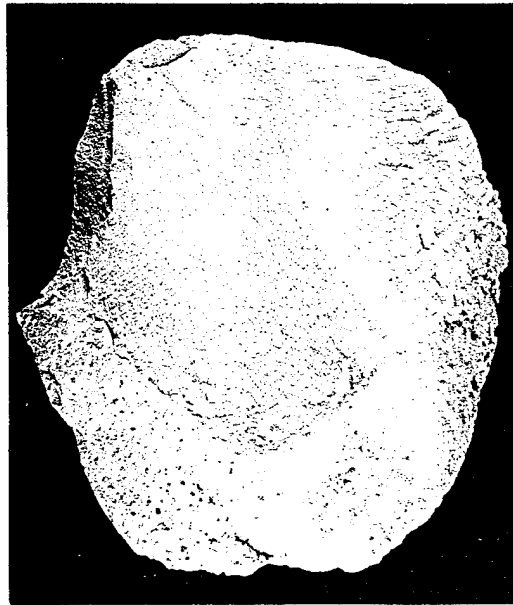
Test Unit 1 was positioned near, but slightly south of, an exposure of bison bone in the cutbank. The area of Test Unit 1 was later expanded north to the cutbank by another unit (Test Unit 4) in order to fully expose this bone. Test Unit 1 was excavated to a depth of 30 cm in the north half and 20 cm in the south half of the unit. One flake of Knife River flint was found in the 00 to 10 cm level (Table 2).

The floor of Test Unit 4 was excavated to a depth of 30 cm. The top 15 to 20 cm of both units is a dark brown clay loam. Below this is a yellowish-brown clay loam with hematite stained gravel extending to a depth of approximately 30 cm. Below this clay is a sandy matrix that appears to be the top of the Fort Union formation (Figure 5).

By 30 cm in Test Unit 4, a bison skull had been partially exposed on the floor in the northwest corner of the unit and extended into the west wall. Test Unit 4 was therefore expanded by the excavation of another 60-by-65 cm block extending west from the original northwest corner. Through this additional excavation, it was possible to define a pit that contained, in addition to the fragmented bison skull, one large piece of basalt, two large pieces of sandstone (all unburned), and additional bison bone, including two articulated units. After being completely excavated, the feature was approximately 80 cm



a



b



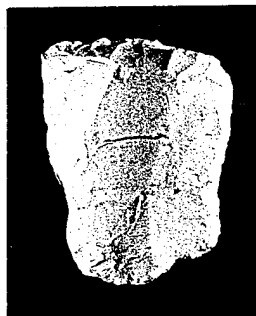
c



d



e



f



g

Figure 3. Artifacts collected from 32ME588; flake tools (a-e) and endscrapers (f, g).



a



b

Figure 4. Saddle on hill side containing Test Units 1, 2 and 4 (a). Test Unit 4 is visible along top edge of cutbank. Photo showing rocks and bone near the bottom of the feature (b).

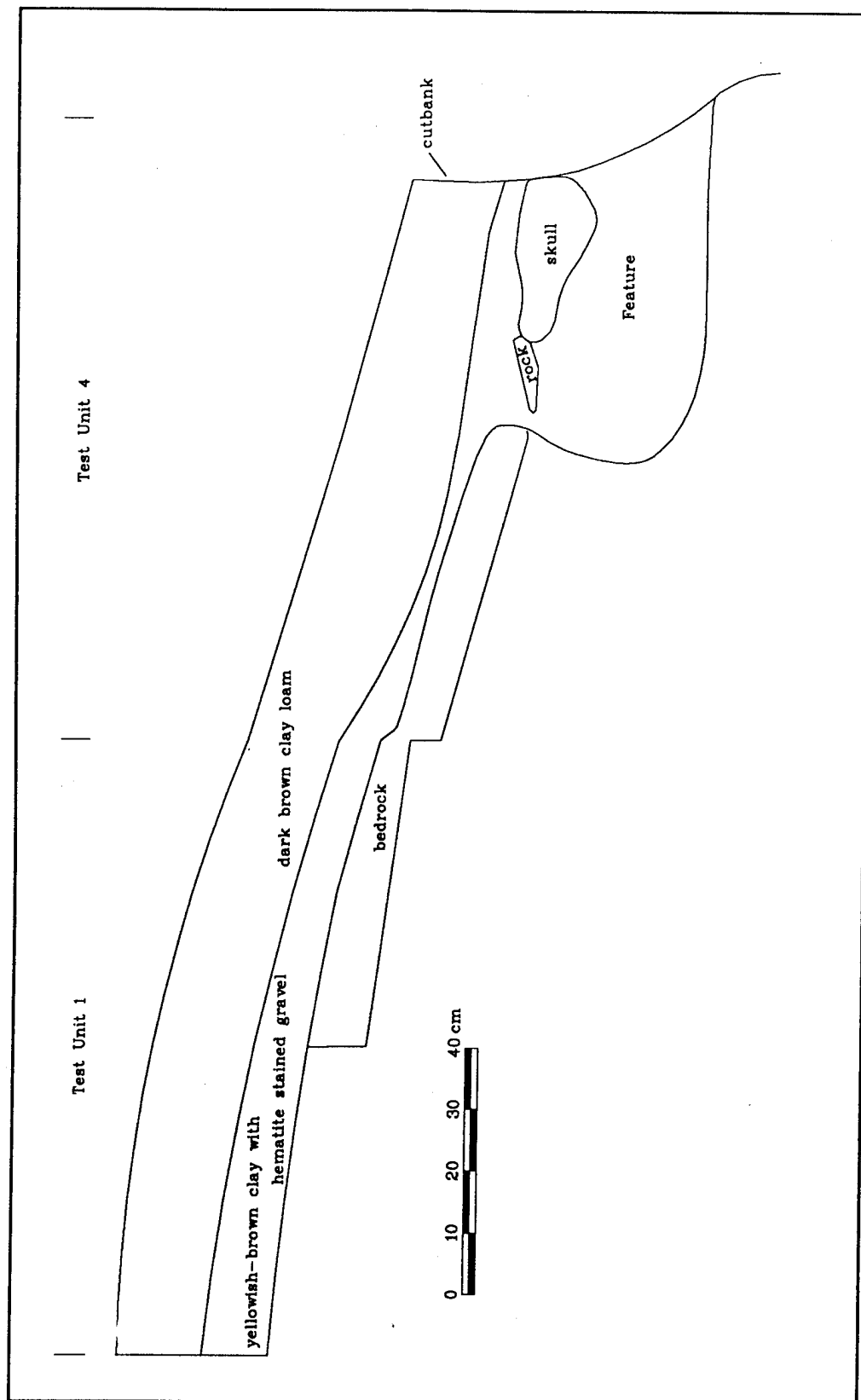


Figure 5. West wall profile of Test Units 1 and 4.

Table 2. Materials from testing at 32ME588.

Provenience	Identified Bone (# elements)	Bone Fragments	Knife River Unburned	Flint flakes Burned	Chert Flakes
Test Unit 1 00-10 cm			1		
Test Unit 2 00-10 cm			4	1	1
Test Unit 2 10-20 cm			3		
Test Unit 2 10-20 cm (ws)*			1		
Test Unit 2 20-30 cm			1		
Test Unit 4 10-20 cm (ws)		1	1		
Test Unit 4 20-30 cm (ws)		8			
Test Unit 4 feature	35				

\* materials from one liter waterscreen samples

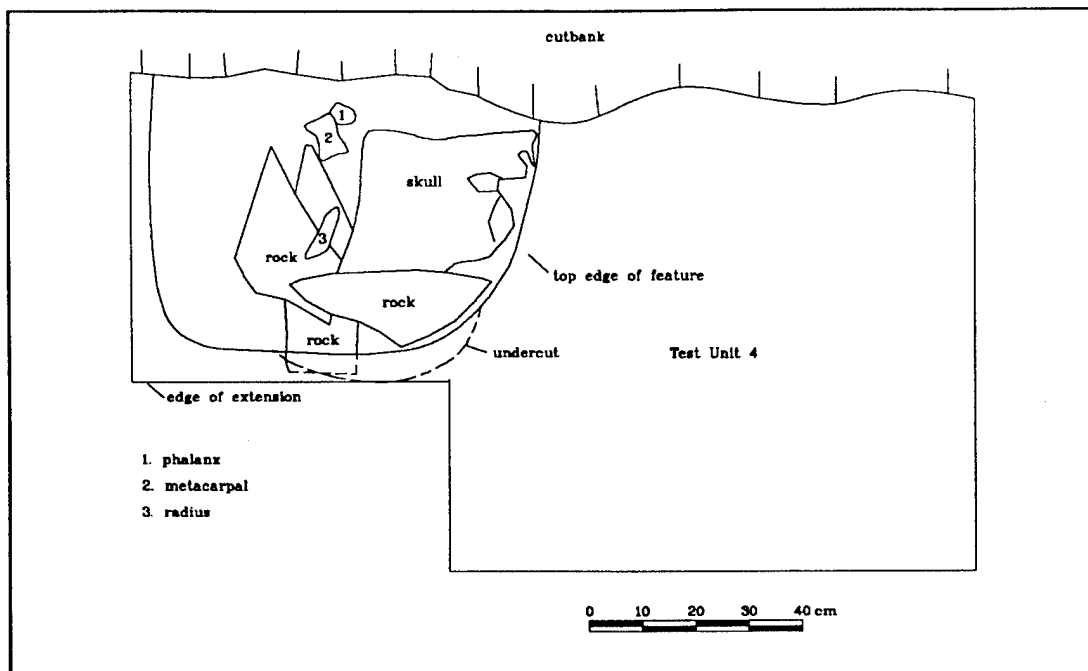
in diameter and 35 to 40 cm deep (the depth being taken from the floor of the 30 cm excavation level). The bottom of the feature was undercut another 10 cm to the south, resulting in a roughly "bell-shaped" profile. The northern portion of the feature had been destroyed by cutbank erosion prior to excavation.

Matrix in the pit, which was dug into the lower bedrock sediments, appeared to be identical to the dark brown sandy clay noted in the upper levels of excavation. No charcoal staining or oxidation was evident and the waterscreen samples did not produce any seeds or charcoal fragments.

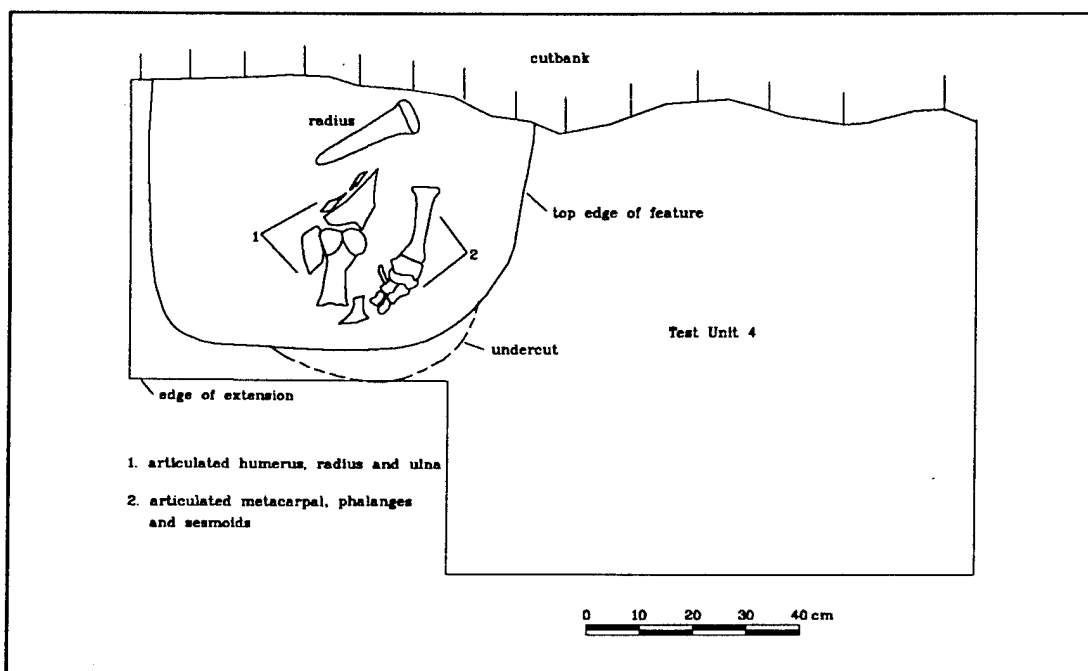
The pit (Figure 4b; Figure 6) contained elements from one immature and at least one mature bison. Besides the fragmented skull noted above, most of the left front leg of a mature bison was found, including a left scapula, a heavily weathered distal humerus, the proximal and distal ends of the radius (with most of the shaft deliberately smashed) most of the ulna, the carpals, the broken metacarpal, both first phalanges, and three proximal sesamoids.

Most of the right front leg of an immature animal were also discovered. This includes the articulated distal humerus, radius and ulna in one part of the pit and the articulated metacarpal, phalanges, four proximal sesamoids and one distal sesamoid in another part of the feature. A fused first and second carpal, a third carpal, an intermediate carpal and an ulnar carpal, all probably from the same immature right leg, were recovered individually from within the pit.

Test Unit 2 was positioned approximately 12 meters southeast of Test Unit 1. It was excavated to a depth of 30 cm in the east half and 40 cm in the west half of the unit. The upper 20 to 30 cm of excavation was in a grayish-brown clay loam deposit similar to the upper materials in Test Units 1 and 4. Below this was a yellowish-gray clay loam with hematite stained gravel (Figure 7). Five flakes of Knife River flint, one flake of burned Knife River flint, and one white chert flake were found in the upper 10 cm. Four flakes



a



b

Figure 6. Plan drawings of rocks and bone in the upper 30 cm of the pit feature (a) and bone in the bottom 10 cm of the feature (b).



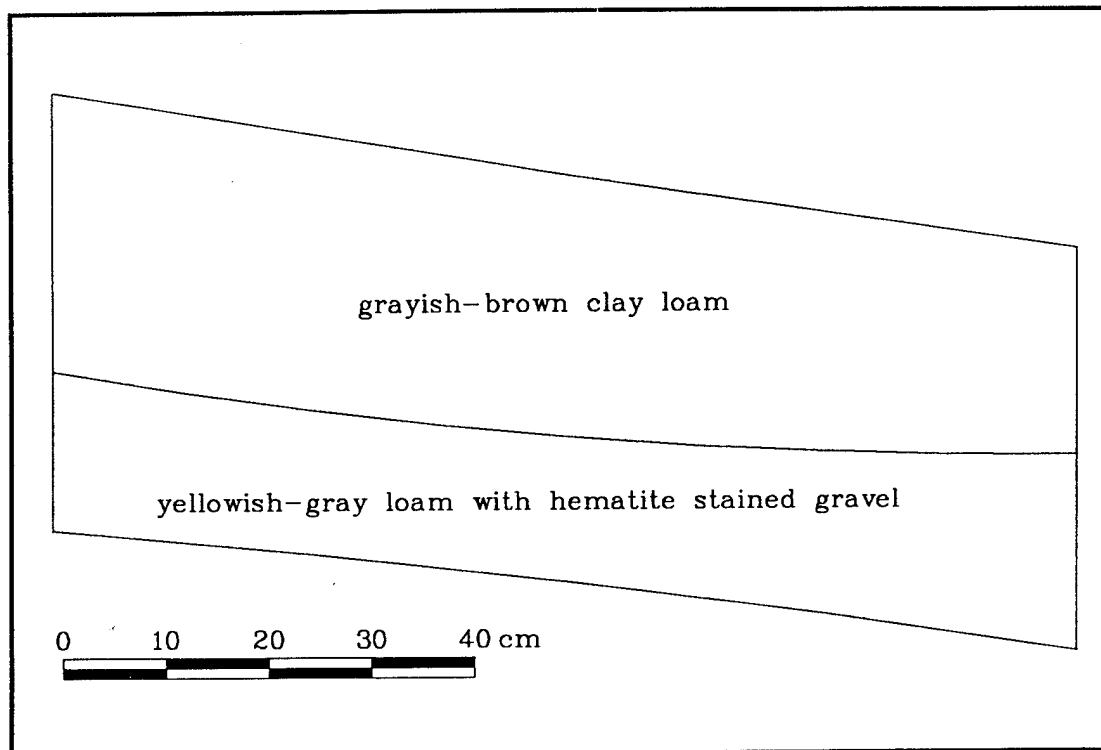


Figure 7. West wall profile of Test Unit 2.

of Knife River flint were found in the 10 to 20 cm level, and one flake of Knife River flint was found in the 20 to 30 cm level.

Test Unit 3 was placed near the central part of 32ME588, near a part of the cutbank where several displaced bison bones had been noted. This area of the site is a very small valley between the higher hill slopes to the east and west. Test Unit 3 was excavated to a depth of 20 cm. The matrix in the unit was a dark grayish-brown silty loam in the upper 12 to 18 cm and a yellowish-brown clay loam below (Figure 8). No cultural material was found in Test Unit 3.

### *CONCLUSIONS AND RECOMMENDATIONS*

Figure 9 is a map with boundaries indicating where surface and subsurface materials are believed to still be present within 32ME588. Surface inventory and shovel testing indicates that there are no cultural deposits remaining within the eastern 225 meters of the site as it was originally defined. The stable deposits south of the cutbank in this part of the site appear to be mantled by extremely shallow Holocene deposits. No artifacts were observed on the narrow beach to the north, and much of the eroded area is covered by recent slumping off of the cutbank.

Based on the boundaries shown on Figure 9, approximately 10,700 square meters of site appear to remain. If the original 1982 site boundaries are accurate, this would indicate that approximately 60 percent of the site has been destroyed by wave action and slumping.

Much of the remaining site area consists of exposed beach area. There is no evidence of intact deposits in this part of the site and the artifacts have probably been displaced to a considerable degree both horizontally and vertically. Because of the lack of physical integrity and the extreme alteration of setting, the beach area of 32ME588 is not believed to have any further significant information potential. The collected and uncollected artifacts from this exposed part of the site do, however, give us a much better impression of the potential cultural assemblage than do the limited amounts of data recovered from testing. The spread of artifacts on the beach is directly north of the artifacts found in Test Units 1, 2, and 4. As such, it seems very likely that all of these materials are from a single cultural component. Although the location of the 1982 artifact collections are uncertain, this component could be related to the "two probable Archaic projectile points" noted by the previous investigators (Kinney and Schriener 1983).

There are at least two pockets of reasonably intact Holocene sediment in the areas behind and to the south of the modern cutbank. One of these is the small saddle area investigated with Test Units 1, 2 and 4. The other is the small depression or valley in which Test Unit 3 was placed. Based on the results from Test Unit 3, this small depression appears to be filled with primarily colluvial sediment and soil build up is minimal. Except for displaced bone along the edge of the cutbank and one surface artifact, no evidence of cultural material was found in this part of the site.

There is evidence of a buried cultural level in the area of the site investigated with Test Units 1, 2 and 4. Based on the flake counts from these test units, it seems likely that the cultural component is centered around the bottom of the 00 to 10 cm level and the top of the 10 to 20 cm level, probably just slightly above the contact with the yellowish-brown clay matrix. Below these depths, one cultural feature was encountered that was reasonably intact.

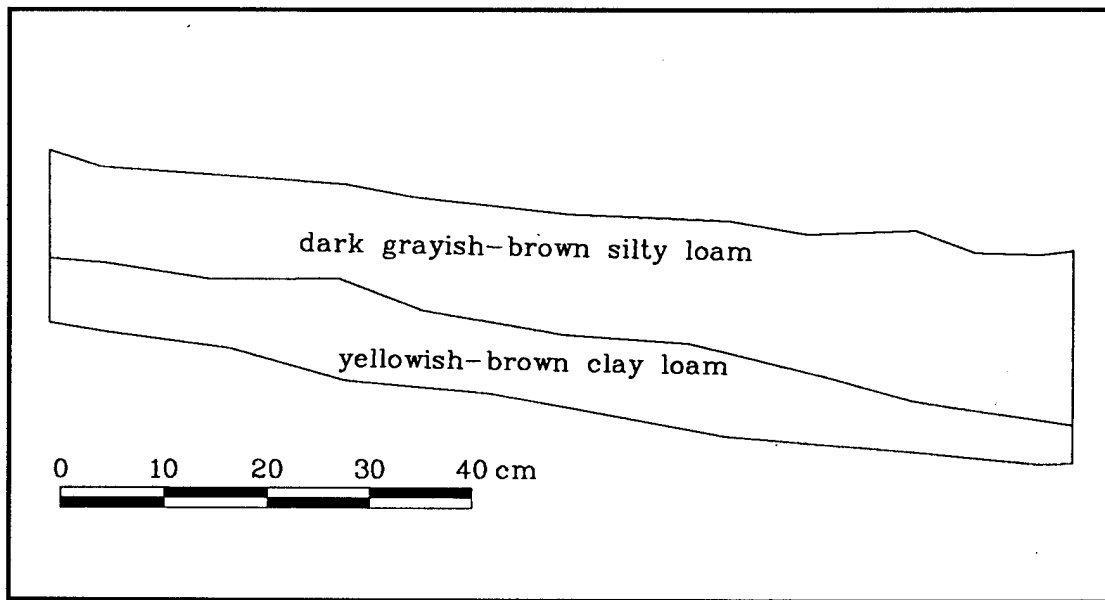


Figure 8. West wall profile of Test Unit 3.

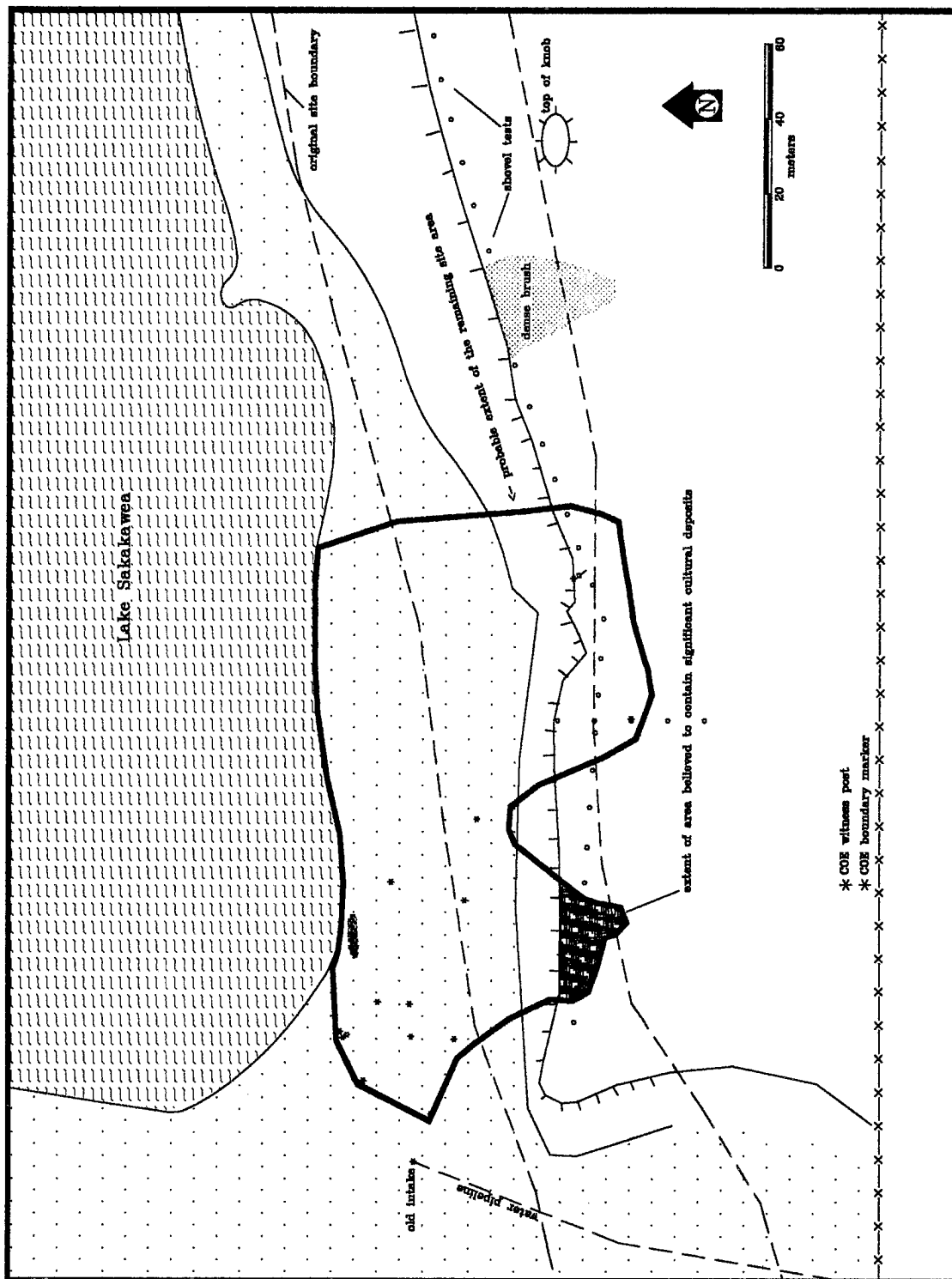


Figure 9. Summary of the areas remaining at 32ME588 (see Figure 2 for comparison).

It is believed that the testing results for Test Units 1, 2, and 4 indicate that this part of 32ME588 (see the area indicated on Figure 9) contains in situ cultural materials that, through additional investigations, could contribute to our understanding of the prehistoric settlement and use of this part of the Garrison Study Unit. Specifically, the results indicate a sparse but reasonably intact cultural level with associated subsurface features. The one feature excavated during the 1995 testing contained datable bone. It appears that the articulated bone elements discovered had been stripped of meat and were in the process of being broken up for marrow and/or bone grease extraction at the time the site was abandoned. The pieces of basalt and sandstone found in the pit with the bone are of sufficient weight and size that they were likely being used as hammers and/or anvils in this bone breaking process. The actual function of the pit itself is uncertain; it could have been an actual storage cache, or it may simply have a depression scooped out and used to contain the bone splinters and marrow as the leg elements were being broken up. Absolutely no evidence of fire or the causal discard of artifacts was detected within the pit.

Based on the artifacts recorded on the beach, it seems likely that the cultural level associated with any features remaining in this part of the site could contain a stone tool assemblage highly amenable to functional interpretations. Taken together with the information from the features, it may be possible to gather a clear understanding of the age and function of this cultural component. For these reasons, this part of 32ME588 is believed to be eligible for nomination to the National Register of Historic Places.

Due to the limited scope of the 1995 investigations at 32ME588, it is not possible to state how rapidly the remaining intact cultural deposits are being destroyed by bank erosion. It does appear, however, that the primary factor influencing this erosion is water saturation in the sediments, resulting in fairly massive slumping. At the water levels presently being maintained in Lake Sakakawea, this saturation and bank slumping appears to be much more of an impact than does wave action.

Although not referenced in the scope of work an initial concern at this site was any the impacts that may have been caused by the water pipeline shown in Figure 2. Although this feature is within the original site boundaries, there is presently no evidence of site materials along this route. It therefore seems unlikely that the installation of this line caused any damage to any type of significant cultural materials.

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